

IN THE CLAIMS:

Please cancel claims 4-6, 16, 17, 20, and 35-37, and please amend claims 7, 13, 25, 30, 34, and 59 as shown below:

Claims 1-6 (canceled).

Claim ²~~7~~ (currently amended): A method of making a GaN single crystal substrate according to claim ~~16~~ ², further comprising after said epitaxial layer growing step:
a GaAs substrate eliminating step of eliminating said GaAs substrate; and
a grinding step of grinding a lower surface of said buffer layer and an upper surface of said epitaxial layer.

Claims 8-12 (canceled)

Claim ³~~13~~ (currently amended): A method of making a GaN single crystal substrate according to claim ~~16~~ ³, wherein said buffer layer is formed by hydride VPE.

Claims 14-24 (canceled)

Claim ¹~~25~~ (currently amended): ~~A method of making a GaN single crystal substrate according to claim 16;~~ A method of making a GaN single crystal substrate comprising:
a buffer layer forming step of forming a buffer layer on said GaAs substrate;
a lower epitaxial layer growing step of growing on said buffer layer a lower epitaxial layer made of GaN;

a mask layer forming step of forming on said lower epitaxial layer, a mask layer having a plurality of opening windows disposed separate from each other, the mask layer having a thickness in the range of 0.05 μm to 0.5 μm ; and

. an epitaxial layer growing step of growing on said mask layer an upper epitaxial layer made of GaN,

wherein said mask forming step includes arranging said plurality of said opening windows with a pitch L in a <10-10> direction of said lower epitaxial layer so as to form a <10-10> window group, and arranging a plurality of <10-10> window groups in parallel with a pitch d ($0.75L < d < 1.3L$) in a <1-210> direction of said lower epitaxial layer,

wherein said upper epitaxial layer growing step includes initially growing a hexagonal pyramid shaped crystal in each of said opening windows whereafter each crystal connects with other crystals on said mask layer without interstices therebetween, and

wherein said opening windows of said mask layer are rectangular windows in an oblong form having a longitudinal direction aligning with a <10-10> direction of said lower epitaxial layer, a plurality of said rectangular windows being arranged with a pitch L in said <10-10> direction so as to form a <10-10> rectangular window group, a plurality of <10-10> rectangular window groups being arranged in parallel with a pitch d in a <1-210> direction of said lower epitaxial layer.

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Claims ~~76~~ (original): A method of making a GaN single crystal substrate according to claim ¹~~25~~, wherein said <10-10> rectangular window groups are arranged in parallel such that the center position of each opening rectangular window in each <10-10> rectangular window group shifts by about $1/2L$ in said <10-10> direction from the center position of each rectangular window in said <10-10> rectangular window group adjacent thereto.

Claims 27 and 28 (canceled)

~~26~~⁵ (original): A method of making a GaN single crystal substrate according to claim ~~26~~¹, wherein said rectangular windows have a pitch L of 4 μm to 20 μm , said rectangular windows adjacent to each other in the longitudinal direction of said rectangular windows have a mask length of 1 μm to 4 μm therebetween, each of said rectangular windows has a width w of 1 μm to 5 μm , and said rectangular windows adjacent to each other in the transverse direction of said rectangular windows have a mask width (d -w) of 2 μm to 10 μm therebetween.

~~30~~⁸ (currently amended): ~~A method of making a GaN single crystal substrate according to claim 16; A method of making a GaN single crystal substrate comprising:~~

a buffer layer forming step of forming a buffer layer on said GaAs substrate;

a lower epitaxial layer growing step of growing on said buffer layer a lower epitaxial layer made of GaN;

a mask layer forming step of forming on said lower epitaxial layer, a mask layer having a plurality of opening windows disposed separate from each other, the mask layer having a thickness in the range of 0.05 μm to 0.5 μm ; and

an epitaxial layer growing step of growing on said mask layer an upper epitaxial layer made of GaN,

wherein said mask forming step includes arranging said plurality of said opening windows with a pitch L in a <10-10> direction of said lower epitaxial layer so as to form a <10-10> window group, and arranging a plurality of <10-10> window groups in parallel with a pitch d (0.75L < d < 1.3L) in a <1-210> direction of said lower epitaxial layer,

wherein said upper epitaxial layer growing step includes initially growing a hexagonal pyramid shaped crystal in each of said opening windows whereafter each crystal connects with other crystals on said mask layer without interstices therebetween, and

wherein each of said opening windows of said mask layer is a hexagonal window formed like a hexagonal ring, each of the six sides of said hexagonal window aligning with a <10-10> direction of said lower epitaxial layer.

Claims 31-33 (canceled)

⁶
Claim ~~34~~ (currently amended): A method of making a GaN single crystal substrate according to claim ~~16~~ ⁶ ~~26~~, wherein said epitaxial layer is grown in said epitaxial layer growing step so as to form an ingot of GaN single crystal,

said method further comprising a cleaving step of cleaving said ingot into a plurality of sheets.

Claims 35-58 (canceled)

⁷
Claim ~~59~~ (currently amended): A method of making a GaN single crystal substrate according to claim ~~16~~ ⁷ ~~26~~, wherein said upper epitaxial layer is vapor phase grown on said mask layer.